FORUM

Tech Transfer: From ARS to a Store Near You

Breeding a wheat variety with better rust resistance and devising an areawide pest management plan to deal with grasshoppers are the kinds of important successes that seem traditional for an agricultural science agency like the Agricultural Research Service. What might seem less apt for such an agency is research that creates new, consumer-oriented products, such as flame-retardant cotton carpeting. But this kind of research is a special part of the ARS mission.

This issue of *Agricultural Research* magazine focuses on some of the many consumer products that are derived from ARS research. For example, you can read about delicious new vegan chocolates (p. 4) and an all-natural, biodegradable sunscreen made from rice and oat bran mixed with soybean oil (page 13).

Why consumer products? When ARS research creates new ways to use agricultural commodities, it helps ensure the economic viability of U.S. agriculture. That new sunscreen could be an additional use for some of the 18 billion pounds of soybean oil produced annually.

Everyone benefits. Increasing the number of uses to which agricultural commodities can be put diversifies the market base, which helps the farmer, and introduces a new range of products, which benefits the consumer. The environment also benefits when the research finds a way to substitute renewable agricultural resources as the basis for products that had been based on petroleum—such as developing a cornstarch-based superabsorbent like Super Slurper.

Often the new-products research in which ARS invests is too long term or high risk for private industries to chance. But after the research succeeds, ARS turns it over to private companies, which develop and produce the actual products consumers will buy, a process called technology transfer.

Research that directly benefits the consumer is not new for ARS. Back in the 1920s, ARS solved the problem of how to give butter a longer kitchen shelf life by making it with sweet cream in place of the traditional use of sour ripened cream. This led to a major improvement in butter production and the butter people buy, an improvement still in use today.

But the number of such consumer products from ARS has increased dramatically in the past two decades—from cosmetics based on meadowfoam oil to edible coatings to keep pecans fresh months longer, from thermally sensitive cotton clothing to a product that lets lactose-intolerant people eat dairy foods.

Part of the reason for the increase in companies taking ARS research from the laboratory to market is the Technology Transfer Act of 1986, which placed a new emphasis on commercializing federal research. Since this legislation, ARS has become a leader in the federal government, credited with more than 600 new patents and 1,100 cooperative research and development agreements (CRADAs), which are formal arrangements enabling ARS scientists to cooperate with companies on research projects of mutual importance. Such agreements often go a long way to ensuring that our research doesn't end up existing only in the pages of a scientific journal.

ARS does not patent research developments just for the sake of claiming higher numbers of patents or even for the revenue returned to the U.S. Treasury from license fees to use ARS patents. Businesses need to know they can protect their investment before they'll be willing to spend the dollars required to develop and market a new product. So, for some research to make it to stores, a patent and a contractual license are critical.

Once a company signs a license for an ARS patent, rarely is that the end of the matter for our scientists. They usually work closely with the company to scale up the technology and to iron out bumps along the path to a marketable product.

Other times, ARS purposely refrains from patenting research developments that should have widespread dissemination and do not require protection of intellectual property rights to reach end users.

ARS doesn't reach agreements only with major corporations. Many of our licenses and CRADAs are with small businesses, including start-up companies formed just to turn a new piece of technology into a product from which consumers can benefit. This leads to another benefit of ARS technology transfer: creation of new jobs, often in small towns and rural areas where jobs are in short supply.

The long list of consumer products that have come from ARS research continues to grow. ARS has a commitment to get its new technology, patented or not, into the hands of those who can put it to work. Information about ARS technologies available for licensing can be found at the ARS Office of Technology Transfer's web site at http://www.ott.ars.usda.gov, or by calling 301-504-6965.

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